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## Measurement of $B_s^0$ meson production in pp and PbPb collisions at $\sqrt{s_{NN}}=5.02$ TeV (Article) [\(Open Access\)](#)

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### Abstract

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The production cross sections of  $B_s^0$  mesons and charge conjugates are measured in proton-proton (pp) and PbPb collisions via the exclusive decay channel  $B_s^0 \rightarrow J/\psi \phi \rightarrow \mu^+ \mu^- K^+ K^-$  at a center-of-mass energy of 5.02 TeV per nucleon pair and within the rapidity range  $|y| < 2.4$  using the CMS detector at the LHC. The pp measurement is performed as a function of transverse momentum ( $p_T$ ) of the  $B_s^0$  mesons in the range of 7 to 50 GeV/c and is compared to the predictions of perturbative QCD calculations. The  $B_s^0$  production yield in PbPb collisions is measured in two  $p_T$  intervals, 7 to 15 and 15 to 50 GeV/c, and compared to the yield in pp collisions in the same kinematic region. The nuclear modification factor ( $R_{AA}$ ) is found to be  $1.5 \pm 0.6(\text{stat}) \pm 0.5(\text{syst})$  for 7–15 GeV/c, and  $0.87 \pm 0.30(\text{stat}) \pm 0.17(\text{syst})$  for 15–50 GeV/c, respectively. Within current uncertainties, the  $B_s^0$  results are consistent with models of strangeness enhancement, and suppression by parton energy loss, as observed for the  $B^+$  mesons. © 2019

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### Author keywords

B meson

Open heavy-flavor

Physics

Quark gluon plasma

### Funding details

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